GLIMPSE
3D Content Display & Storage

Abstract

Glimpse is a content management & storage platform for the visualization of 3D CAD models, simulation results, and VR/AR assets. In leveraging modern web technologies like Azure Cloud, ReactJS, Python Flask, and Docker, the platform will be a flexible and scalable application that enables content-sharing, rapid prototyping, design feedback, and more across an organization.

Goals

- Provide Kinetic Vision with a standardized web solution for providing 3D experiences, towards the goal of replacing KV's past practice of providing one off solutions.
- Allow for viewing and storing 3D content of various types.
- Implement a simple and intuitive client GUI.

Impact

- Glimpse provides a single, lightweight codebase, which utilizes modern web technologies such as ReactJS, three.js, GraphQL, and Flask.
- It could also lay the groundwork for a publicly-accessible framework for the hosting and visualizing of 3D data and engineering models and simulations.

Results

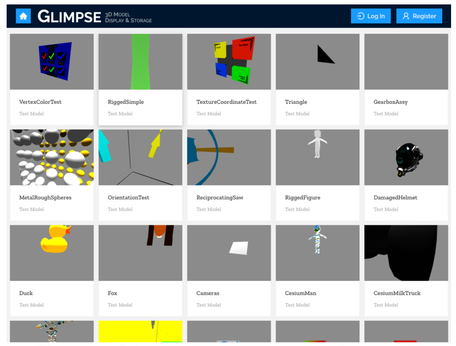

Figure 1: Glimpse home page, showing a grid of cards featuring different 3D Content.

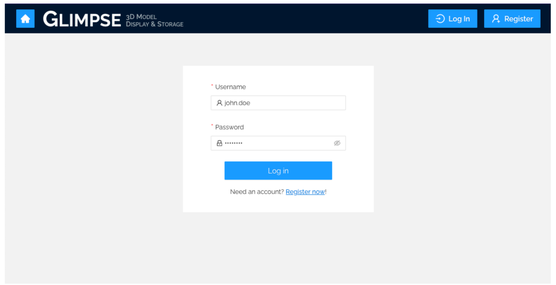

Figure 2: Glimpse's log-in page, which also links to user registration if needed.

Figure 3: Glimpse's interactive 3D Viewer, displaying a test 3D model.

Figure 4: Individual content modal, reached by clicking on a card. Includes the interactive 3D viewer, with the corresponding model loaded in.

Challenges

- Development was pushed back a few weeks because of a package dependency issue in local environment with a zero-install yarn setup.
- Sorting out connectivity problems between Python's AzureSDK and an Azure Blob Storage emulator pushed back completion of the API slightly.
- Significant research, trial and error involved in the development of the 3D viewer

Design

Glimpse was designed so that users will be able to:

- Securely login or register
- Browse, view, and interact with both public and their own private 3D content
- Upload and/or download models, using our secure blob cloud storage

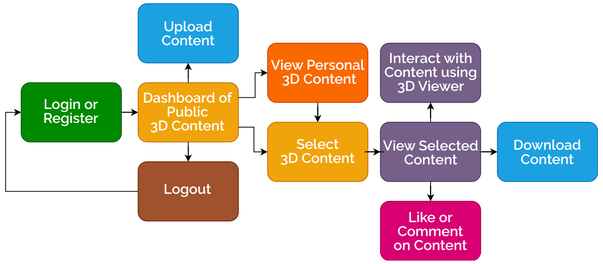

Figure 5: Glimpse user interaction flow diagram.

Figure 6: Several of the key technologies utilized in Glimpse's development. Others not pictured include Python, Typescript, and Three.js.

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